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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/601,073

06/19/2003

Walter Craig Michie

KEMP-003

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10/27/2005

SIERRA PATENT GROUP, LTD.

P O BOX 6149

STATELINE, NV 89449

EXAMINER

BOLDA, ERIC L

ART UNIT

PAPER NUMBER

3663

DATE MAILED: 10/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/601,073

Applicant(s)

MICHIE ET AL.

Examiner

Eric Boldt

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) 1-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-36 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date Sept. 22, 2003.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of claims 23-36, reading on the species embodiment of Fig. 10 with Fig. 11, in the reply filed on Sept. 22, 2005 is acknowledged. The traversal is on the ground(s) that Figures 11 and 12 "merely show two different algorithms implemented in controller 121". Also the Applicant alleges claims 1 and 23 are generic, but that claim 1 does not cover the embodiment of claim 10. This is not found persuasive because it supports the Examiner's restriction/election requirement, see reply: page 15, lines 17-18, and page 16, lines 4-5. The restriction requirement is still deemed proper and is therefore made FINAL.

Drawings

2. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the drawings use non-standard symbols and unlabelled boxes to illustrate parts of the invention. For example, the subtractor (128) on Fig. 11 is designated by a circle with a multiplication sign, and the optical attenuator (28) on Fig. 10 is designated by a dashed rectangle. These symbols are contrary to standard usage in the art. Applicant is advised to supply drawings using symbols and labels as commonly accepted in the art. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Specification

3. The disclosure is objected to because of the following informalities: in para. [0099], the word "substracter" should be subtractor.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 23-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Goobar (US Pat. No. 6,934,076).

With regard to claim 23, Goobar discloses in Fig. 3 an automatic power control (APC) system for automatic power control of an optical amplifier. The optical amplifier (100) may be a semiconductor optical amplifier (SOA). The APC system comprises an optical power detector (330) to detect the output power of the SOA, and an estimator (360) of amplified spontaneous emission (ASE), which compensates for the ASE in the output power of the SOA. The estimated ASE is based on at least two variables, see 4th col. lines 55-63. The automatic power control system maintains the power of the amplified output signal at a desired level from the measured total output power (2nd col. lines 35-40).

With regard to claim 24, the ASE is estimated based on the detected output power and the desired output level (2nd col. lines 35-40).

With regard to claim 25, the APC system includes a current driver (5th col. lines 23-25). Since the injection current of the SOA determines the gain, the APC loop compensates for ASE based on the control signal for the injection current, and the detected output power.

With regard to claim 26, the APC system comprises a memory means storing characteristics of the SOA (such as the constants k_1 and k_2 of Eq. (3) and Eq. (4), 5th col. lines 42-44).

With regard to claim 27, the memory means stores a look-up table (5th col. line 44).

With regard to claim 28, the memory means may store a mathematical (i. e. numerical) formula representing the characteristics (5th col. lines 8-10).

With regard to claims 29 and 30, the control loop derives an estimated level of the amplified signal from the detected output power, compensating for the level of ASE. The error between the estimated level of the amplifier output and the desired output is derived and used as a feedback signal to adjust the gain of the amplifier to provide APC (5th col. lines 35-58).

With regard to claim 31, the APC loop comprises a microprocessor, i. e. digital controller to provide APC using the measured output power and the desired output power.

With regard to claim 32, the APC system includes a current driver (5th col. lines 23-25).

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With regard to claim 33, the APC system calculates the error in the error signal generator (380) between the estimated output power and desired output power (5th col. lines 50-54).

With regard to claim 34, the APC loop includes a current driver controlled by the control signal, wherein a step in the algorithm estimates the level of the amplified signal in the output power (Fig. 5).

With regard to claim 35, the optical power detector is a photodetector.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claim 36 rejected under 35 U.S.C. 103(a) as being unpatentable over Goobar as applied to claim 23 above in view of Goobar (US Pat. No. 6,934,076). Goobar ('076) does not disclose the controller outputs monitor signals. However, Goobar ('343) teaches (5th col. lines 45-55) peripheral devices monitoring the optical amplifier

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operation, e. g. output power, estimated level, or estimated ASE. It would have been obvious to one skilled in the art (e. g. an optical engineer) to includes the peripheral devices of Goobar ('343) for monitoring the APC optical amplifier of ('076) for the purpose of testing the operation of the APC system.

Note that all the citations made herein are done so for the convenience of the applicant; they are in no way intended to be limiting. The prior art should be considered in its entirety.

Information Disclosure Statement

8. The information disclosure statement filed on Sept. 22, 2003 has been considered by the Examiner.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Fujita et al., Murakami et al., Gerrish et al.

10. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Eric Bolda whose telephone number is 571-272-8104. The examiner can normally be reached on M-F from 8:30am to 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the Examiner's supervisor, Jack Keith, can be reached on 571-272-6878. Please note the fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for

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published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

EB

Eric Boldt

Mark Helmer